

REMARKS

The issues outstanding in the office action of December 28, 2009, are the rejections under 35 U.S.C. 102 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

At the outset, the Examiner is thanked for indicating withdrawal of the rejection to the specification and to claims 5 and 20.

Rejections Under 35 U.S.C. 102/103

Claims 1-11, 17, 18, 21, 23-26 and 28-30 have been rejected under 35 U.S.C. 102(b) or, in the alternative 103, over Allen (WO '537). Reconsideration of this rejection is again respectfully requested. At the outset, it is noted that claims 16 and 12 are not included in this rejection. Thus, their incorporation in claim 1 obviates the rejection on the basis of novelty. However, it is again emphasized that there is no example in the reference of the use in the polymer in an electroluminescent device. In fact, Allen prefers the use of its polymers in electroreprography. See page 23, lines 30-31. The vast majority of the Allen disclosure is directed to this utility. Thus, it is submitted that the broad disclosure of the application is simply too generic to suggest the present claims, even apart from the thickness limitation.

It is further submitted that the declaration under 37 C.F.R. 1.132 provided with the previous response clearly establishes the unexpected nature of the present claims. That declaration was denied consideration in the Final Rejection, with the simple (but incorrect) conclusion at page 8 of the office action that the showing "cannot be used to overcome the rejection under 35 U.S.C. 102." In fact, all the claims have also been rejected under 35 U.S.C. 103, and thus the declaration *must* be considered as it pertains to this rejection. This is, of course, all the more of the case since the present claims are solely those which were rejected under 35 U.S.C. 103, not under 35 U.S.C. 102.

In any event, it is clear that the declaration establishes the non-obvious nature of the present claims. First, it is noted that the data presented by Experiment 5 in Allen thus strongly deters one skilled in the art from using materials of Formula 1 wherein m is at least 35 in any

device, much less an EL device, due to deteriorating electronic properties. In particular, Allen concludes that their data show application performance improving with molecular weight (m) until a plateau is reached over the range of 24 to 31. The Applicants conclude that for “ m values above 31 there is a deterioration of performance which becomes very abrupt when m reaches 42.” The Applicants conclude that this “illustrates the desirability of being able to readily control the m value”, e.g., by limiting molecular weight.

By contrast, the use of materials of Formula 1 wherein m is at least 35 in an EL device actually and unexpectedly results in substantial improvements mentioned above.

It has surprisingly been found that the material of Formula 1, wherein m is at least 35, is especially effective for improving the overall EL device performance. For instance, EL devices fabricated using the material of Formula 1 wherein m is at least 35 have been found to have improved luminescence efficiency and to operate with lower drive voltages. Due to the ability to work with lower drive voltages, the material of Formula 1 can also be used as a relatively thick layer which, in turn, leads to further advantages including improved device reliability, less breakdown and improved device lifetime. The declaration compares devices made according to the invention with devices made using materials of Formula 1 wherein m is less than 35. In more detail, the declaration compares the performance of EL devices which have an organic hole injection layer of a material of Formula 1 with varying m values: $m = 1$, $m = 3$, $m = 25$ (all non-inventive) and $m = 45$ (inventive).

Two samples of device were made: Sample (1) using an electroluminescent material (EML) layer of S-DPVB_i and Sample (2) using an EML layer of Ir(piq)₃ in CBP. Details of the device fabrication, which is conventional and within the skills of the person ordinarily skilled in the art is provided in the declaration. In both cases (i.e., Sample (1) and Sample (2)), it can be seen that the inventive samples made using a material of Formula 1 where $m = 45$ are considerably improved in terms of having a higher efficiency (i.e. cd/A value) and lower drive voltage (V @ 100cd/m²) compared to the samples made using material of Formula 1 wherein $m = 25$ and also the samples where $m = 1$ or 3. Accordingly, it is submitted that this further establishes the non-obviousness of the present invention. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 12-16, 19, 20, 22 and 27 have also been rejected under 35 U.S.C. 103 over Allen, taken with Buechel. Buechel is cited in order to provide a disclosure of layer thicknesses and layer structures. It does not, however, disclose the molecular weights presently used. On this basis alone, accordingly, it is submitted that the declaration establishes patentability of the claims, and withdrawal of this rejection is also respectfully requested.

The claims of the application are submitted to be in condition for allowance. However, if the Examiner has any questions or comments, he is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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